

MULTI-DENTATE LATE TRANSITION METAL CATALYST  
COMPLEXES AND POLYMERIZATION METHODS USING THOSE  
COMPLEXES

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ABSTRACT OF THE DISCLOSURE

The instant invention provides a late transition metal complex which can be used with an activating cocatalyst to produce polymers and copolymers. The invention also provides methods for polymerizing olefins, as well as copolymers having polar monomers incorporated therein. More specifically, the

10 invention provides a composition having the formula  $LMXZ_n$ , wherein M is selected from the group consisting of Cu, Ag and Au; X is selected from the group consisting of halide, hydride, triflate, acetate, borate,  $C_1$  through  $C_{12}$  alkyl,  $C_1$  through  $C_{12}$  alkoxy,  $C_3$  through  $C_{12}$  cycloalkyl,  $C_3$  through  $C_{12}$  cycloalkoxy, aryl, thiolate, nitrate, sulfate, nitrile, hydroxide and any other moiety into which

15 a monomer can insert; Z is selected from the group consisting of halide, hydride, triflate, acetate, borate,  $C_1$  through  $C_{12}$  alkyl,  $C_1$  through  $C_{12}$  alkoxy,  $C_3$  through  $C_{12}$  cycloalkyl,  $C_3$  through  $C_{12}$  cycloalkoxy, aryl, thiolate, carbon monoxide, nitrate, nitrile, hydroxide, sulfate, olefins, water, any other neutral coordinating ligand and any other moiety into which a monomer can insert; n equals 0, 1 or 2;

20 and L is a multi-dentate nitrogen-containing ligand.

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